SECTION 04815 - GLASS UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes interior glass unit masonry assemblies.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include glass block, cementitious materials, waterproofing admixtures for mortar, and accessories.

B. Samples for Initial Selection: Manufacturer's actual glass-block units for each form, pattern, and color indicated.

1.4 QUALITY ASSURANCE

A. Source Limitations for Glass Block: Obtain each type and pattern of glass block through one source from a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store glass block in unopened cartons on elevated platforms, under cover, and in a dry location.

B. Store cementitious materials on elevated platforms, under cover, and in a dry location.

C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

D. Store accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation of glass unit masonry assemblies only when ambient and material temperatures are 40 degrees F (4.4 degrees C) and rising.
   1. Maintain temperature in installation areas at 40 degrees F (4.4 degrees C) or above for 48 hours after installing.

1.7 SEQUENCING AND SCHEDULING

A. Sequence and coordinate completion of glass unit masonry assemblies so sealants can be installed immediately after mortar has attained final set.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to:
   1. Hollow Glass Block:
      a. Pittsburgh Corning Corporation.
      b. Weck: J. Weck GmbH u. Co.

2.2 GLASS BLOCK

A. Hollow Glass Block: Non-load-bearing blocks made by fusing together two halves of pressed glass to produce partially evacuated hollow units complying with the following requirements for color, pattern, size, and other characteristics:

1. Glass Colors: Provide colors as selected from manufacturer's full range.
2. Patterns: Manufacturer's standard pattern with light-diffusive wavy design on inner faces, and smooth outer faces.
3. Edge-Coating Color: Provide colors selected from manufacturer's full range.
   a. Provide multiple colors as indicated for each size and pattern.
4. Unit Sizes: Manufacturer's standard sizes corresponding to nominal sizes indicated on Drawings.
5. Square Unit Sizes: Actual sizes as indicated below:
   a. 5-3/4 inches (146 mm) square by 3-7/8 inches (98 mm) thick for windows.
   b. 7-3/4 inches (197 mm) square by 3-7/8 inches (98 mm) thick for partitions.
6. End-Block Unit Size: 7-3/4 inches (197 mm) square by 3-7/8 inches (98 mm) thick.
7. Top Corner Unit Sizes and Shapes: End unit with top matching finished end and with rounded finished corner in manufacturer's standard size to match end units.
8. Thick-Faced Units: 7-3/4 inches (197 mm) square by 3-7/8 inches (98 mm) thick, actual size, with faces at least 3/4 inch (19 mm) thick.

2.3 MORTAR MATERIALS

A. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.

1. For pigmented mortar, use colored portland cement-lime mix of formulation required to produce color indicated or, if not indicated, as selected from manufacturer's standard formulations. Pigments shall not

from manufacturer's standard formulations. Pigments shall not exceed 10 percent of portland cement by weight for mineral oxides or 2 percent for carbon black.

B. Aggregate: ASTM C 144 and as indicated below:
   1. For pointing mortar and joints narrower than 1/4 inch (6 mm), use aggregate graded with 100 percent passing No. 16 (1.18-mm) sieve.
   2. White Aggregates: Natural white sand or ground white stone.

C. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in glass-block masonry mortar.

D. Water: Potable.

2.4 GLASS UNIT MASONRY ACCESSORIES

A. Panel Reinforcement: Ladder-type units, butt welded, not lapped and welded, complying with ASTM A 951 in straight lengths of not less than 10 feet (3 m), and as follows:
   1. Hot-dip galvanized, carbon-steel wire.
   2. Wire Size: W1.7 or 0.148-inch (3.8-mm) diameter.
   3. Spacing of Side Rods: 2 inches (50 mm) o.c.
   4. Spacing of Cross Rods: Not more than 16 inches (407 mm) apart.

B. Panel Anchors: Glass-block manufacturer's standard perforated steel strips, 0.0359 inch (0.9 mm) by 1-3/4 inches (44 mm) wide by 24 inches (600 mm) long, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.

C. Asphalt Emulsion: Cold-applied asphalt emulsion complying with ASTM D 1187 or ASTM D 1227.
   1. Product: Subject to compliance with requirements, provide "Karnak 100" by Karnak Corp.

D. Sealants and related materials, including primers, cylindrical sealant backing, and bond-breaker tape, are specified in Division 7 Section "Joint Sealants."

E. Anchor Bolts: Headed steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M; of diameter and length indicated.

2.5 MORTAR MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, or antifreeze compounds, unless otherwise indicated. Do not use calcium chloride.
1. Combine and thoroughly mix cementitious materials, water, and aggregates in a mechanical batch mixer, unless otherwise indicated. Mix mortar to produce a stiff but workable consistency that is drier than mortar for brick or concrete masonry. Discard mortar when it has reached initial set.

B. Mortar for Glass Unit Masonry Assemblies: Comply with ASTM C 270.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine sills, jambs, and heads surrounding glass unit masonry assemblies for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Advise installers of other construction about specific requirements for placement of dovetail slots and other inserts required to anchor and support glass

unit masonry assemblies. Furnish installers of other construction with Drawings or templates showing locations of these items.

3.3 GLASS UNIT MASONRY ASSEMBLY CONSTRUCTION

A. Apply a heavy coat of asphalt emulsion to sill and adhere expansion strips to jambs and heads with asphalt emulsion. Allow asphalt emulsion to dry before placing mortar. Trim expansion strips to width required to fit glass block and to full lengths of heads and jambs.

B. Set glass block with completely filled bed and head joints, with no furrowing, accurately spaced and coordinated with other construction. Maintain 1/4-inch (6-mm) exposed joint widths.

C. Install panel reinforcement in horizontal joints at spacing indicated and continuously from end to end of panels.

D. Use rubber mallet to tap units into position. Do not use steel tools, and do not allow units to come into contact with metal accessories and frames.

E. Use plastic spacers or temporary wedges in mortar joints to produce uniform joint widths and to prevent mortar from being squeezed out of joints.

F. Keep expansion joints free of mortar.

G. Rake out joints indicated to be pointed to a uniform depth sufficient to accommodate pointing material, but not less than joint width.
   1. Point joints at both faces of panels with sealant.

H. Pointing of joints with sealant, including installation of primer and bond-breaker tape or cylindrical sealant backing, is specified in Division 7 Section "Joint Sealants."

I. Tool exposed joints slightly concave when pointing mortar is thumbprint hard. Use a smooth plastic jointer larger than joint width.

J. Remove temporary wedges, if used, and fill voids with mortar.

K. Clean glass unit masonry assemblies as work progresses. Remove mortar fins and smears immediately, using a clean, wet sponge or a scrub brush with stiff fiber bristles. Do not use harsh cleaners, acids, abrasives, steel wool, or wire brushes when removing mortar or cleaning glass unit masonry assemblies.

L. Installation of sealant at jambs, heads, mullions, and other locations indicated, including installation of primer and bond-breaker tape or cylindrical sealant backing, is specified in Division 7 Section "Joint Sealants."

M. Construction Tolerances: Set glass block to comply with the following tolerances:
1. Variation from Plumb: For lines and surfaces of vertical elements and arris, do not exceed 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch in 40 feet (12 mm in 12 m) or more.
2. Variation from Level: For bed joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m) or 1/2 inch in 40 feet (12 mm in 12 m) or more.
3. Variation of Linear Building Line: For positions shown in plan and related portions of walls and partitions, do not exceed 1/2 inch in 20 feet (12 mm in 6 m) or 3/4 inch in 40 feet (19 mm in 12 m) or more.
4. Variation in Mortar-Joint Thickness: Do not vary from joint thickness indicated by more than plus or minus 1/16 inch (1.5 mm).

3.4 CLEANING

A. On surfaces adjacent to glass unit masonry assemblies, remove mortar and other residue resulting from glass-block installation, in a manner approved by manufacturers of materials involved.

B. Remove excess sealants with commercial solvents of type recommended by sealant manufacturer. Exercise care not to damage sealant in joints.

C. Perform final cleaning of glass unit masonry assemblies when surface is not exposed to direct sunlight. Start at top of panel using generous amounts of clean water. Remove water with clean, dry, soft cloths; change cloths frequently to eliminate dried mortar particles and aggregate.

END OF SECTION 04815